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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,764	05/30/2000	Bunsen Y. Wong	MM0011	1163

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EXAMINER	
RICKMAN, HOLLY C	
ART UNIT	PAPER NUMBER
1773	3

DATE MAILED: 04/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/584,764	WONG ET AL.	
	Examiner	Art Unit	
	Holly Rickman	1773	

-- The MAILING DATE f this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 May 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 16 and 17 are objected to because of the following informalities: claim 16 should read "Co-20Cr-" in line 3 instead of "Co-20CR" and claim 17 should read "Co-18Cr-" in line 3 instead of "CO-18Cr-." Appropriate correction is required.

2. Claims 9 and 18 are objected to because of the following informalities: claims 9 and 18 require a substrate "selected from nickel phosphorus and ceramic glass" and claim 18 also requires an underlayer that is "selected from chromium and chrome alloy." Both claim limitations are improper Markush groupings. It is suggested that Applicant use standard Markush language, that is, "X is selected from the group consisting of A, B, C, and D" or alternatively, "X is A, B, C, or D."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,11, 13, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (IEEE Trans. Magn., Vol. 30, No. 6, pp. 4011-13, November 1994).

Song et al. disclose a magnetic recording medium and a method of making said medium wherein a Cr underlayer is sputtered onto a NiP-plated aluminum substrate, a first magnetic layer, a second magnetic layer and a carbon overcoat were sputtered onto the Cr underlayer (see p. 4011, section II, first paragraph). The magnetic layers are formed from Co alloys containing Cr and additional elements including Pt and Ta (Table I). The reference teaches that the coercivity of the magnetic layers is controlled by modifying the composition and thickness of the individual layers (p. 4011, col. 2, lines 3-12).

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

withdrawn

6. Claims 1-3, 8-13 and 18-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chen et al. (US 5763071).

Chen et al. disclose a magnetic recording medium having multiple magnetic layers (CoCrTa and CoCrPtTa layers) that are sputtered onto a Cr underlayer that is sputtered onto a NiP-plated AlMg substrate (Fig. 4, col. 1, lines 28-39). The reference also teaches forming a carbon overcoat on top of the magnetic layers and a lubricant layer on the overcoat (Fig. 4). Chen et al. teach that the magnetic layers are formed from Co alloys containing at least Cr and Ta and may further include Pt. Cr is sputtered to form the underlayer. The reference teaches that

the thickness of each magnetic layer is in the range of 5-200 Å (0.05-20 nm). The reference does not specifically state that the coercivity of the magnetic layers is determined by the relative thicknesses of the first and second magnetic layers.

It is the Examiner's contention that the recording medium disclosed by Chen et al. inherently satisfies the limitation directed to the coercivity of the magnetic layers being determined by the relative thicknesses of the first and second magnetic layers. The structure of the recording medium taught by Chen et al. is substantially the same as that claimed by Applicant (i.e., substrate, underlayer, multiple magnetic layers, thickness of magnetic layers), the composition of the layers are substantially the same, and the recording medium is made by the same process as claimed. As such, one of ordinary skill in the art would expect Chen's recording medium to exhibit the claimed properties and characteristics.

It has been held that where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC §102 or on prima facie obviousness under 35 USC §103, jointly or alternatively. *In re Best, Bolton, and Shaw*, 195 USPQ 430. (CCPA 1977).

With respect to the thickness limitation of claims 2 and 12, it is the Examiner's position that the portion of the thickness range disclosed by Chen et al. that overlaps the claimed range anticipates the claims. For those values outside of the claimed range, it is the Examiner's contention that it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the thickness of the magnetic layers since the thickness affects the

coercivity of the medium. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim Rejections - 35 USC § 103

7. Claims 2-3, 6, 8-9, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. (IEEE Trans. Magn., Vol. 30, No. 6, pp. 4011-13, November 1994).

Song et al. disclose a magnetic recording medium and a method of making said medium wherein a Cr underlayer is sputtered onto a NiP aluminum substrate, a first magnetic layer, a second magnetic layer and a carbon overcoat were sputtered onto the Cr underlayer (see p. 4011, section II, first paragraph). The magnetic layers are formed from Co alloys containing Cr and additional elements including Pt and Ta (Table I). The reference teaches that the coercivity of the magnetic layers is controlled by modifying the composition and thickness of the individual layers (p. 4011, col. 2, lines 3-12). The reference teaches that the total thickness of the two magnetic layers is 500 Angstroms and the thickness of each layer can be optimized to obtain the desired coercivity (p. 4011, col. 2, lines 10-12 of section II). The reference fails to disclose the claimed magnetic layer thickness range.

It would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal thickness for each magnetic layer in order to achieve the optimal coercivity. Such an optimization would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claims 6 and 16, Song et al. teach a recording medium having a first layer of CoCrPtB and a second layer of CoCrPtTa (Table I). The reference teaches that the composition of the magnetic layers affects coercivity. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal composition for each magnetic layer in order to achieve the optimal coercivity. Such an optimization would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

8. Claims 1-5, 7-9, 11-15, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (US 6280813).

Carey et al. disclose a magnetic recording medium having a Cr underlayer sputtered on a NiP-plated AlMg substrate, a first magnetic layer formed from CoCrPtB and a second underlayer formed from CoCrPtB (Fig. 3). The reference also teaches that the magnetic layers can be formed from CoCrPtTa (col. 6, line 65 to col. 7, line 3). The reference teaches that the relative thicknesses and compositions of the two magnetic layers can be varied in order to achieve optimal recording properties (col. 7, claims 1 and 3-5).

While the reference does not specifically state that the compositions of the two CoCrPtB layers shown in Figure 3 can be adjusted to achieve this purpose, it is the Examiner's contention that it would have been obvious to one of ordinary skill in the art at the time of invention to adjust the compositions of the magnetic layers shown in Figure 3 or substitute other magnetic alloys in place of one or both of the magnetic layers. It would have been obvious to determine the optimal composition of the CoCrPtB layers or CoCrPtTa layers since the composition of the

layers affects the magnetic moment of the layers. Such an optimization would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to the claim limitations directed to the coercivity of the first and second magnetic layers being determined by the relative thicknesses of the two layer, it is the Examiner's contention that the recording medium taught by Carey et al. necessarily satisfies this limitation of the claims by virtue of the fact that Carey et al. teaches a recording medium made by the same method as claimed and having substantially the same structure as claimed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (703) 305-2642. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Holly Rickman
Examiner
Art Unit 1773

hcr
March 25, 2002